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Iowa CONSERVATIONIST

February 1987

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Iowa CONSERVATIONIST

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FRONT COVER: Great-horned owl. Photo by Lowell Washburn.

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NIGHT STALKER

The Great-Horned Owl:

Grim Reaper of the Iowa Woodlands

By Lowell Washburn

The drama had been recorded in breathtaking clarity — not on film, but rather in the powdery freshness of last night's snow.

A cottontail had just emerged from the impossible thorny tangle of a raspberry patch and was headed for supper in the picked cornfield which lay adjacent to the woodlot. According to the tracks, there had been no struggle. For the rabbit, death had come swiftly and silently. In fact, the record showed that the bunny had not taken so much as a single sideways leap in an effort to escape. All the rabbit had left behind was a tuft of fur and a rapidly fading pink spot in the snow.

Nearby, a single tawny feather fluttered at the end of a broken cornstalk, offering a calling card of sorts that clearly identified the second player in this brief encounter. But then such tangible evidence really wasn't necessary for only one predator could take its prey so completely unaware, dispatch it instantly, and then lift the relatively large creature into the air without leaving so much as a single drag mark to indicate a labored takeoff. Such a feat could only be accomplished by Iowa's premier predator — the great-horned owl.

Often referred to as the "flying tiger," the large and aggressive owl represents a true top-of-the-food-chain predator if ever there was one. To accomplish its role as a perfect



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killing machine, the horned owl comes equipped with a powerful vice-like grip, needle sharp talons, and silky fringed feathers for totally silent flight. But perhaps it is the owl's eyes that are its most amazing specialization. So large that they barely leave room in the skull for the brain, these sensitive organs are strategically located in the front of the bird's head. This greatly enhances the binocular vision needed to precisely gauge the depth of field needed to make pinpoint strikes on scurrying targets. With pupils that dilate nearly as large as the eyes themselves, the great-horned owl is extremely adept at operating over-thick, brushy cover in conditions of low light.

Although its stately plumage and dignified air may mask the bird's true personality, few predators, winged or otherwise, can hold a candle to the pure unbridled savagery of an adult horned owl who has failed to punch his meal ticket recently.

The food items normally included in the horned owl's diet are so diverse that it is almost easier to list the things the bird doesn't eat than to attempt to name the creatures it does. Included among the more unusual prey species are red-tailed hawks, wild turkeys and stray cats.

"Often referred to as the 'flying tiger,' the large and aggressive owl represents a true top-of-the-food-chain predator..."

Horned owls also frequently prey on striped skunks, and the bird often reeks with the unmistakable odor of that animal.

Although the great-horned owl spends a good deal of its time serving as one of nature's finest flying mousetraps, the species does acquire an image problem from time to time. Depending heavily upon rabbits during periods of deep snow, an industrious pair of owls can effectively reduce cottontail numbers in a small woodlot or farm grove in a relatively

Lowell Washburn

short period of time. This is a fact little appreciated by local sportsmen who have their eye on the same bunnies.

Professional conservationists have also occasionally had difficulties maintaining total objectivity toward this winged terror. In southern Iowa, for example, early growth of the Colyn goose flock (part of the DNR's now successful effort to reestablish a breeding population of giant Canada geese) was hampered due to serious predation on goslings by horned owls. Similar situations have occurred in other states during efforts to reestablish the endangered peregrine falcon. In Iowa, radio telemetry studies have indicated that the horned owl represents the major stumbling block in our attempts to restore another endangered raptor — the barn owl.

Most people are familiar with the great-horned owl through the deep, mournful serenades that cause many

folks to refer to the species as the "hoot owl." Horned owl pairs are especially prone to vocalize during courtship activities which begin during the dead of winter. Throughout its range, this owl is the first bird to begin nesting each year, and in Iowa the first eggs appear by mid-February. Consequently, the brooding female may find herself buried in several inches of snow as a result of late season storms.

Horned owls build no nests of their own, but rather readily accept those previously constructed by crows or hawks. The birds are also fond of natural cavities or the depressions found atop snags. Like other wildlife, the big bird is directly impacted by the activities of man. However, this species has proven to be amazingly resilient and able to cope with dramatic changes within its environment. A classic example of this adaptability occurred at Hancock County's Eagle Lake where Dr. R.

Michael Heston discovered a pair of nearly fledged owlets being reared in an over-the-water metal nesting structure designed for Canada geese.

Although the selection of such a nest site may be a bit unorthodox for a woodland predator, it does make a case for the bird's uncanny ability to survive. Whether you love the bird, hate the bird, or both, one thing seems certain — the great-horned owl has absolutely no intention of stepping aside for civilization, and there is little doubt that the haunting call of this magnificent hunter will echo across Iowa's moonlit landscapes for generations to come.

Lowell Washburn is an information specialist located in Clear Lake. He has been with the department since 1984.

Highly adaptable, a great-horned owl used a man-made goose nest to produce these owlets.



Mike Heston



The state nursery at Ames produces millions of seedlings for conservation plantings in Iowa.



Ken Formanek

DNR Photo

THE STATE FOREST NURSERY

By Gene Hertel

Time to Take Stock

High-quality stock is professionally handled, bagged and shipped to land-owners throughout the state for forestry, wildlife and soil conservation uses.



Ken Formanek



Ken Formanek

From its beginning, the state forest nursery has done its job well.

Operated by the Iowa Conservation Commission (now the Iowa Department of Natural Resources) since 1941 when the Civilian Conservation Corps turned the nursery operation to the state, the nursery has continued to provide nursery stock for forestation, erosion control and wildlife plantings. The Legislature authorized a major expansion at the Ames site in 1975 and provided for an expanded growing area on Department of Corrections property in 1982.

The nursery has been working with people who are interested for one reason or another in bringing back at least a remnant of the more than seven million acres of timber that covered this state as late as the mid-1800's. Through the years, the nursery has turned out to be a very necessary source of seedlings in the state as an intense concentration on row crop agriculture has reduced the forested lands in Iowa to about 1.5 million acres.

Every attempt is made to avoid competition with private nurseries. Foresters and wildlife biologists select species for planting that are ideally suited to forestry and wildlife purposes, and not attractive to ornamental or shade tree fanciers.

Departmental policy to avoid undue competition with private nurseries has been in effect for the 45 years of state nursery operation. No ornamental trees, such as concolor fir, blue spruce and flowering crab, are sold. Only bare-foot seedlings are produced. Each person who orders plants is required to certify that the

plants will not be used for new farmstead windbreaks, ornamental plantings, or shade trees. Individual orders must total at least 500 plants, except for special wildlife packets. (Two wildlife packages — a songbird selection and a special wildlife packet — are very popular among wildlife enthusiasts.)

The state nursery program provides planting incentives for landowners. Seedlings of suitable species and seed sources, available at low cost, have resulted in the replanting of much woodland lost to past clearing and disease.

Landowners receive planting advice and tree ordering assistance from professional conservationists. This assistance is provided by foresters and biologists of the Department of Natural Resources, personnel of the U.S. Department of Agriculture, and county conservation board personnel. A few private nurserymen do contract tree planting, and include

state nursery stock when planting on private lands.

The past 30 years have seen more than a 40 percent loss in Iowa's woodland acres. Dutch elm disease, over-grazing of woodlands and clearing for pasture and row-crop production have contributed to this loss. Some government programs have encouraged land clearing in past years. The state nursery is one of few positive incentives for establishing plantings for conservation purposes. Recent expansions have made it possible to encourage and to serve even more people who want to plant trees.

Public tax funds supporting the state nursery encourage individuals to plant for the public benefit. This is comparable to paying part of a landowner's cost for erosion control and other soil saving practices, which have public, as well as private, benefit.

The state sells nursery stock at less than half the cost of private nursery

Trees and tall shrubs are produced and distributed by the state nursery at low cost to landowners for conservation plantings. Restricted use and absence of ornamental species minimizes competition with private nurseries.



Ken Formanek

stock. The state nursery is subsidized (about 50%) by tax dollars. This program provides several advantages to Iowa and Iowans.

Several thousand acres of land are planted to trees and shrubs each year and a consistent supply of suitable planting stock is available.

Purchasers of state seedlings are assured plants that are hardy under Iowa conditions, and that will produce desirable timber crops or land cover. Walnut seedlings, for example, are produced from seed collected locally.

Landowner payments for state nursery stock stay within the Iowa economy. The only major nurseries producing conservation stock for retail sale are located in other states.

Several million trees and shrubs are planted each year because of the interest in planting stimulated by state and federal conservation programs and personnel. Coordination between the state nursery and other agencies assures that excellent advice and assistance is available to landowners.

Private nurserymen and other private individuals earn income by contracting with landowners to plant state grown stock.

The nursery properties offer the opportunity to experiment with new plant material in cooperation with Iowa State University and the U.S. Forest Service.

State forests, parks, and wildlife areas, are planted at low cost. It is often convenient to plant state lands with stock that would otherwise be too large to be sold the following year.

Plantings of all types, not only conservation plantings, are increased by activities of the state nursery. An awareness of the value of trees and shrubs is important to all Iowa's nurseries. Promotion and sale of state stock increases this awareness, and provides for private demonstration areas throughout the state.

It is unlikely that Iowa's conservation planting needs would be met by private nurseries. Landowner costs would surely increase. Dependable



DNR Photo

supplies of suitable seedling stock would be questionable. Public costs to stimulate planting through government cost sharing with landowners would increase. Sales of stock by Department of Natural Resources personnel and other government employees, as now done for state stock, would not be appropriate, making it more difficult for landowners to purchase stock. Any long-term commitment for a statewide planting program would, of necessity, depend upon the profits to be made by commercial growers. If profits lag, prices will increase or stock will become unavailable.

If prices increase for any reason, demand will fall. A "Bareroot Seedling Production Market and Demand Study" done for the Illinois Department of Conservation in 1986, concludes that small price increases are accompanied by relatively large decreases in the quantity of seedlings demanded from the state nurseries.

The state nursery is an important element of the entire conservation effort in Iowa. Tree and shrub planting is a positive effort in the face of many negative influences upon the woodlands and wildlife lands of the state.

EDITORIAL

Need More of a Good Thing

The State Forest Nursery at Ames has been providing conservation planting stock to Iowans since the 1930s, first with the help of the Civilian Conservation Corps, then through the Conservation Commission. The nursery has continued to sell trees and shrubs to Iowans until the present time, now under the Iowa Department of Natural Resources.

A group of private nurserymen has asked the legislature to sell the state nursery and allow private industry to provide conservation stock. A legislative study committee has considered the proposal during the interim between sessions.

The state forest nursery has served Iowans with low-cost seedling trees and shrubs for conservation plantings for 50 years. Landowners and those who serve them — the biologists, foresters, conservationists and private nurseries doing contract tree planting — depend upon this reliable source of stock at reasonable prices. The nursery program is a positive element among many negative forces which have reduced our forestland to a mere four percent of the state's area. There is no assurance that conservation plantings will be done if landowners must buy stock at higher costs. The legislature should give every consideration to maintaining the state forest nursery as it is currently being managed.

The DNR now sells trees and shrubs strictly for conservation plantings at about half the cost of production. Landowners are encouraged to plant by the low cost of the nursery stock. All Iowans benefit from the erosion control, wildlife cover and forestry plantings.

Gene Hertel
State Forester

Forestry Through the Years

By Bill Farris

The forestry section of the Department of Natural Resources had its beginning in 1935 with legislation directing the employment of "a professionally trained state forester." The first state forester was G. B. McDonald, professor of forestry of Iowa State College. White Pine Hollow was acquired in 1936 as a state forest, and much of the original state forest acreage was acquired during the 1930s. A forest nursery was established at Ames in the mid 1930s by the Civilian Conservation Corps.

M. A. Ellerhoff became the first full-time state forester during the 1940s, having formerly worked for the Soil Conservation Service and the Timber War Production Board. During the 1947-48 biennium, the Conservation Commission (now the Department of Natural Resources) cooperated with the U. S. Forest Service in the operation of three farm forestry projects in the state. These projects were conducted entirely with funds and personnel of the U.S. Forest Service. However, starting on October 1, 1947, the two farm forestry projects, at Perry and Iowa City, came under the Conservation Commission with reimbursements from the U. S. Forest Service for one-half the total cost.

With passage of the Cooperative Forest Management Act of 1950, the forestry program rapidly expanded. By the end of the decade, farm foresters were located at McGregor, Anamosa, Muscatine, Fairfield, Chariton and Adel. The Soil Bank Program during this period resulted in an expansion of the State Forest Nursery and hundreds of acres planted to trees. The sawmill at the Yellow River State Forest was installed in 1950. In 1959, 1,205 acres of the Yellow River State Forest was transferred to the National Park Service to establish Effigy Mounds National Monument.

During the 1960s, the farm forestry program continued to expand with offices established at LeMars, Charles City and Red Oak. The Little Sioux Flood Prevention Program and increased activity in PL 566 watersheds was the impetus behind this expansion. A full-time fire prevention forester, Milo "Smokey" Peterson, was employed to promote a forest fire prevention program. Federal lands, part of the proposed

Hawkeye National Forest, were acquired by the state and added to the state forests. An inmate labor program on the Yellow River and Shimek forests was started in cooperation with the Department of Corrections. The forestry section, under contract to the Corps of Engineers, developed and implemented a vegetative management plan at Rathbun Reservoir.

During the 1970s, the protection program was expanded to include insect and disease as well as fire protection. A full-time utilization and marketing specialist was added to provide technical assistance to the loggers and wood-using industry in the state. Two more farm forestry districts were established at Humboldt and Creston. With these additions, all landowners in the state had ready access to technical assistance. Two regional forester positions were also added to supervise and administer the growing programs. Detailed forest management plans were developed on the three major state forests in 1972. A new office and processing facility was built at the State Forest Nursery, expanding that operation and improving the stock handling capabilities. The Rural Community Fire Protection Program, which provides federal funds to local fire departments on a matching basis, was started. In addition, we saw the Forestry Incentives Cost-Share Program, the Urban Forestry Program and the Tree City, USA recognition program initiated.

In the 1980s, the forestry section began a forest management program on wildlife areas and state parks. A Forest Resources Plan for Iowa was completed and approved by the commission in 1985. Legislation requiring all timber buyers in the state to be bonded was enacted with the forestry section responsible for administration. The nursery was expanded by the addition of a new growing area at the Montrose Prison Farm in cooperation with the Department of Corrections.

Bill Farris is the assistant state forester located in Des Moines. He holds a B.S. degree in forestry from Iowa State University. He has been with the department since 1961.

G. B. MacDonald



The 1930 photo of a farm north of Ames shows a gully planted to black locust.



G. B. MacDonald

G. B. MacDonald



Above is a reforestation project at Lewis and Clark State Park in Monona County.

A stand of black walnut near Castana, Iowa. At the time of the photo the trees stood 70 to 80 feet high.



The Department of Natural Resources **RECREATIONAL SAFETY OFFICER PROGRAM**

By Rod Slings

During the past year, some new initials have been introduced by our department. Everyone is familiar with the term "DNR," short for the Department of Natural Resources. Another term, "RSO," has been introduced. This term stands for Recreational Safety Officer.

The law enforcement bureau of the DNR now employs six RSOs, one for each law enforcement district. These six additional conservation officers work primarily with the department's safety programs — hunter safety, boating safety, and snowmobile safety. When not actively participating in these programs, the RSOs enforce state and federal fish and wildlife, snowmobile and navi-

gational laws. They are certified Iowa peace officers, as are all state conservation officers.

The DNR's hunter safety program has been teaching hunting education since 1960. In 1983, hunter safety became mandatory for anyone born after January 1, 1967 who wishes to purchase a resident or nonresident hunting license. Each must complete a ten-hour hunter education course. With the enactment of this new law, the increased work load to the department precipitated the need for the RSOs. The teaching process is made up of mainly volunteer instructors, including individuals and sporting groups such as the Iles. The RSOs' role is to train and certify instructors, provide instructor workshops and provide teaching aides

and materials. The goal of the RSO program is to improve the education of Iowa's hunters, not only to keep it safe but to promote improved hunter ethics to the sport.

The DNR's boating safety program is the only one of the three that is not mandatory. In other words, a person is not required to take a boating safety course to operate a private boat. Over the past ten years, Iowa's boating registrations have increased 23 percent bringing the number of registered boats to nearly 200,000 in 1987. Along with this has come a steady increase of boating accidents. It is the RSOs' assignment to promote boating safety, on a volunteer basis, to veteran as well as new boat

operators. Our first step is getting our boating safety program into as many schools as possible and promoting it as a lifetime sport. A home-study course is available by request through our Des Moines office. The RSOs develop displays at sportshows, fairs and shopping centers providing information on boating safety. Our new aquanauts boating program will target summer camps and other organizations to teach by practicing boating skills and water safety. Without question, an aggressive public relations program will save lives on Iowa's waters.

The DNR's snowmobile safety program requires that everyone born after July 1, 1965 must complete an eight-hour safety course in order to operate a snowmobile or an ATV on public lands in Iowa. The RSOs' once again work with volunteer instructors and provide workshops to certify new ones. RSOs also help active instructors in setting up courses and providing materials for the classes. The RSOs work closely with local snowmobile clubs and the Iowa Snowmobile Association. Interested individuals and organized snowmobile clubs have been the backbone of this program, and continued support and effort help make it a safer sport.

The RSOs also maintain in-service training records and assist the district enforcement supervisors in developing in-service training programs for conservation officers. The training exercises may range from survival of a capsized boat to video-taped exercises to sharpen an officer's response to a situation.

The addition of the RSO program and the overall professionalism of the DNR's law enforcement bureau is one all Iowans can be proud of. It is one more step to providing a safer recreational experience in Iowa's fine outdoors.

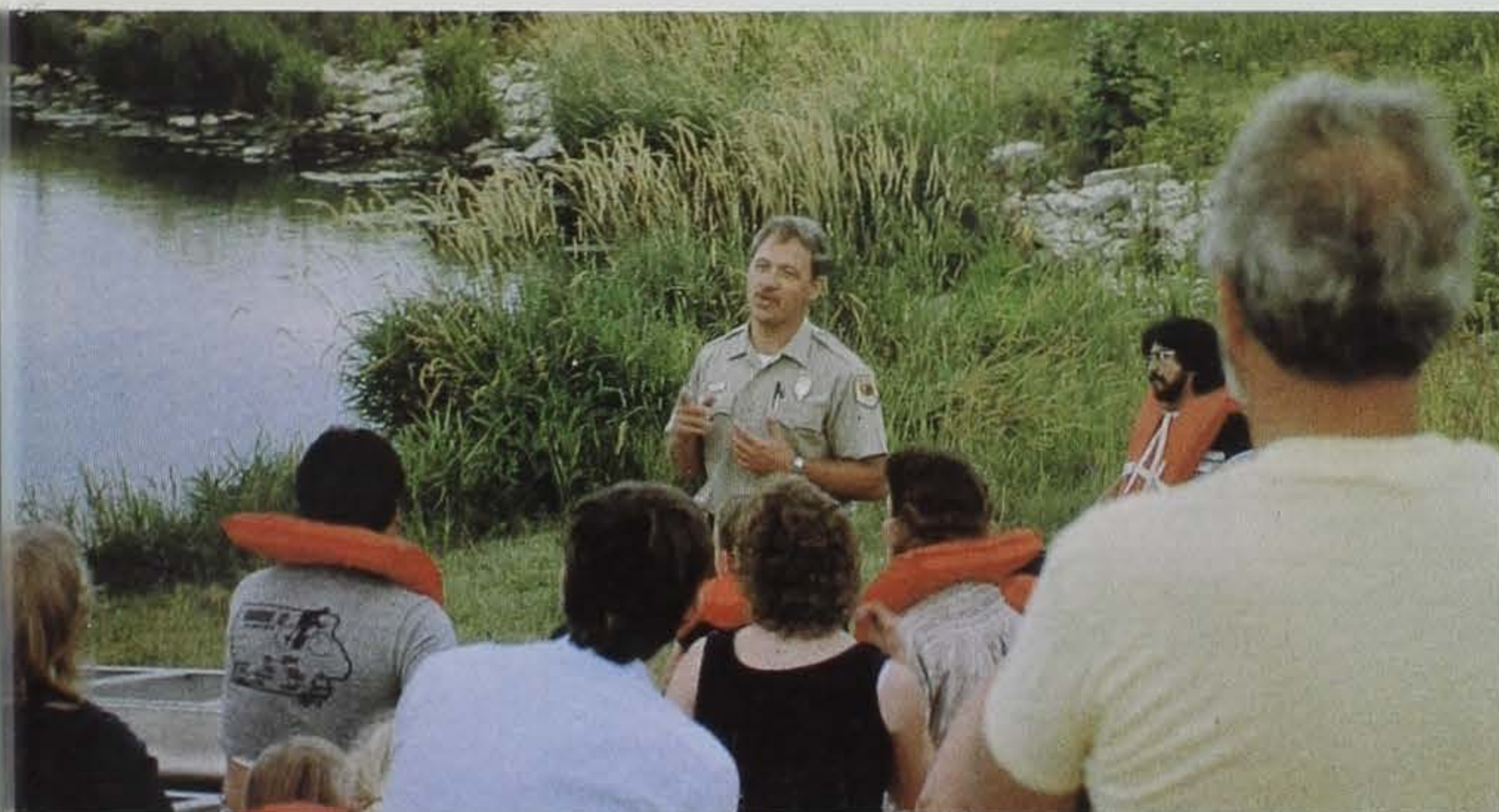
Rod Slings is a recreational safety officer for south-central Iowa. He has been with the department since 1973.



Jennifer Lancaster

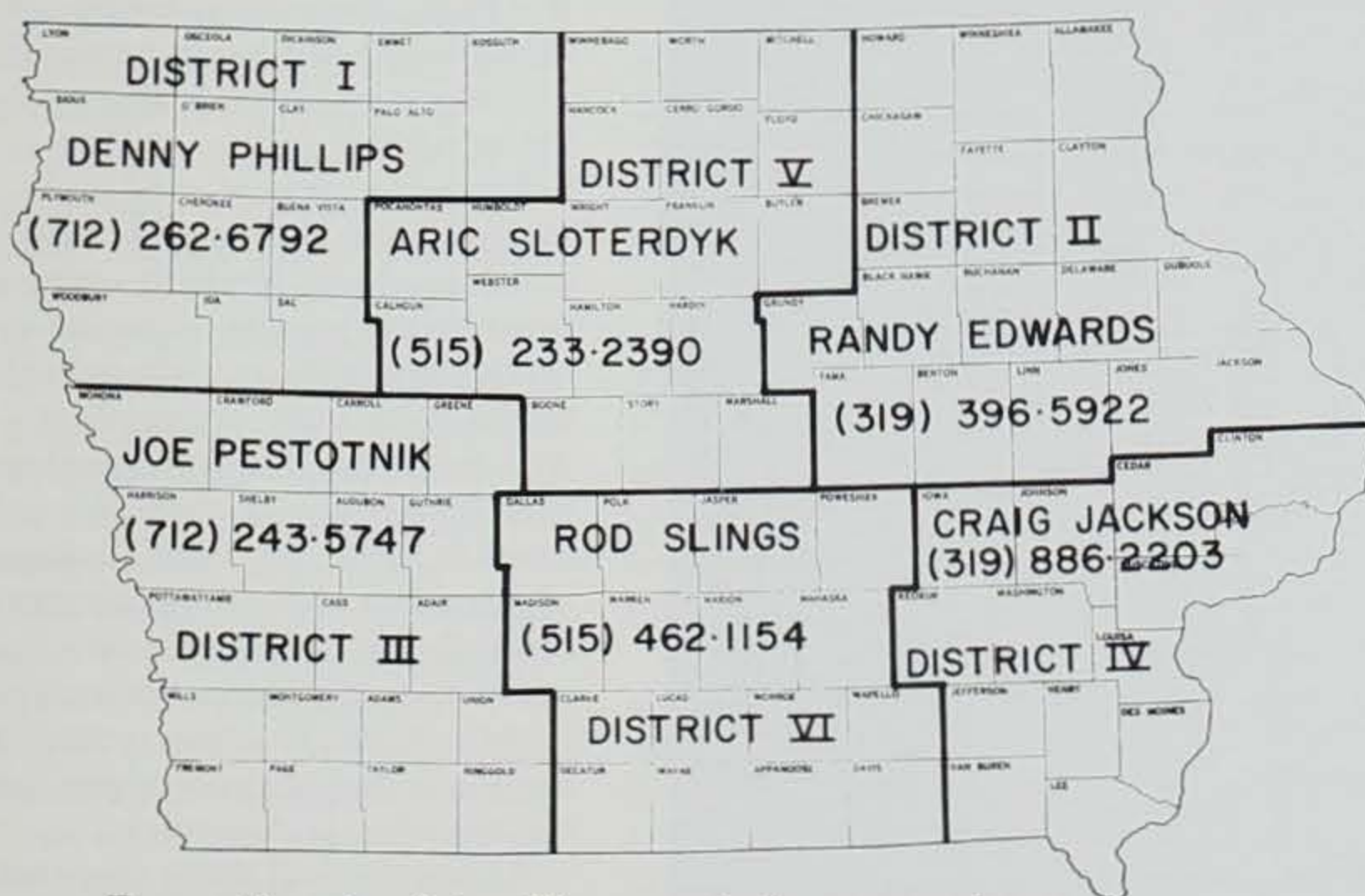


Randy Edwards



John Klein

Recreational safety officers teach hunter, snowmobile and boating safety in the classroom and in the field.



Recreational safety officers and phone numbers.

Cold Water Cave

A SUBTERRANEAN FANTASY

By Wendy J. Zohrer

As the day drew closer, I nervously anticipated the climb into Cold Water Cave. This privately owned cave is located north of Decorah in Winneshiek County. It isn't a typical cave where a tour guide leads the group along a cement sidewalk and points out rock formations. There is no elevator or stairway down the 94 feet to the cave floor.

The first hurdle of this entire experience was to reach the cave by climb-

ing down a metal ladder inside a 30-inch metal tube. This climb is equivalent to scaling a nine-story building in total darkness. From this height, the bottom of the ladder cannot be seen.

Entering the cave by this method was nothing compared to what Steve Barnett and David Jagnow experienced as they dove into Cold Water Spring in 1967. They dove through an underwater passage for one-quarter mile before finally emerging into

what is now known as Cold Water Cave.

The air within the cave was also found to have high levels of carbon dioxide (CO_2) at the time of discovery. It was two percent CO_2 by volume while normal air outside the cave is around three-hundredths percent CO_2 . When CO_2 levels are high in the presence of adequate oxygen, fatigue and hyperventilation can occur. The CO_2 level has now dropped, but care must still be taken while in the cave.

Caves in northern states are usually small and consist of short, narrow passageways. Cold Water Cave is unique in Iowa because of its ten-mile length. The beautiful cave formations have had little exposure to human presence.

I visited the cave on a blustery day in November. That was not a problem since cave temperatures remain fairly constant. The air and water temperatures of this particular cave remain around 47°F. all year.

We all prepared for this trip by squeezing into damp wetsuits, oversized sneakers and hardhats. The wetsuits served as a second skin and insulated us against the cold, but I felt awkward as I first attempted movement in this suit.

My heartbeat accelerated as I made my first climb down the metal ladder. The climb was slow and tedious, but when my feet touched solid ground and I gazed around, I knew that I had truly entered another world. The passageway is 18 feet wide and 16 feet high. The walls appeared pock-marked and had a coating of black iron-manganese oxide along the lower portions.

Five park rangers and I were excited, yet a little apprehensive at what lay ahead. Rudy Prusko, an Iowa Grotto member, was our guide on this underground adventure. The Iowa Grotto is an organization devoted to the discovery, exploration, mapping and scientific study of caves in Iowa. The Iowa Grotto is one of a number of such organizations throughout the United States that make up the National Speleological Society (NSS). The NSS serves to promote safe caving procedures, cave conservation and research.

Although Cold Water Cave contains some potential hazards, there

Cave explorer inspects Cold Water's delicate features.



M. J. Brunk

has been no major accident there. That made it a little easier to face the black, watery corridor. We were facing water lined with submerged boulders and potholes and I worried about being the family "klutz." Still, images of the upcoming gallery section danced in my head as we took our first step into the cold, moving water.

Nature's artistry was at work when it created this subterranean masterpiece known as the gallery. It is a broad expanse of flowstone resembling a frozen white waterfall. It gradually blends into a long row of delicate dripstone drapes. Great care has been taken to preserve these marvelous formations. It takes thousands of years to form these awesome features, and the mere touch of a hand could permanently alter this sight. Some formations also emit an eerie light if a camera flash is used near it. A mineral within some of these deposits will absorb the light and it can be seen when all flashlights and miner's lamps are extinguished.

Formations within the cave vary in color. Just beyond the gallery section, a red rock deposit was seen. Michael Bounk, a research geologist for the Geological Survey Bureau of the Iowa Department of Natural Resources and experienced caver, explained that a bacteria changes the oxidation state of iron to a reddish color. Other cave features such as stalagmites, stalagmites, and soda straws may appear to be white, brown, gray, black or even orange in color depending on the minerals present. Bounk also commented that brown and black formations are no longer growing while the white to red portions are still "alive," perhaps due to changes in the water flow.

Soda straws are young hollow stalagmites. They are arranged along ceiling rock fractures. Their growth is from acidic rainwater which dissolves the limestone. Calcium carbonate (calcite) forms a ring on the ceiling after the carbon dioxide evaporates. The next drop flows through the ring and deposits another layer of calcite on the end. It takes hundreds to thousands of years to form one small soda straw. They may eventually become plugged in the middle and a flow will continue

on the outside. A stalagmite may eventually appear. A stalagmite is formed from the ceiling down while a stalagmite grows from the floor up. If these formations meet, they become a column.

Some cave features became underwater obstacles. I felt like a mouse in a maze as I struggled through pothole country. The stream flow has caused a scouring action on the limestone. This has resulted in potholes ranging up to seven feet in diameter and nearly four feet deep. Everyone felt a chilling sensation as the 47-degree water rose over the tops of our wetsuit pants.

We spent three hours in the cave and traveled one mile downstream. The water level varied from ankle deep to unknown depths over my head. The deep water was what I dreaded the most. I consider myself a "sinker" rather than a "swimmer," and was concerned about some portions of the cave. I kept telling myself that the wetsuits add buoyancy and would keep me afloat. The guys guaranteed that they'd pull me out before I ran into too much trouble.

Progress downstream was slow as we felt for underwater rocks and potholes. I also looked for wildlife signs, but found none. Evidence of terrestrial and aquatic beetles, millipeds, mites and spiders were found in the cave during the Iowa Geological Survey study in the early 1970's. Slimy sculpins, small fish, have also been documented near the spring entrance.

This cave is too cold for cave-adapted animals, but tiger salamanders may drop in through sinkholes. They could feed on the earthworms that are present, but may also become sluggish from the low cave temperatures. Salamanders may eventually escape through the Cold Water Spring opening. A gate has been permanently erected in the spring entrance. It is large enough for small animals to escape, but too small for people to enter through the spring.

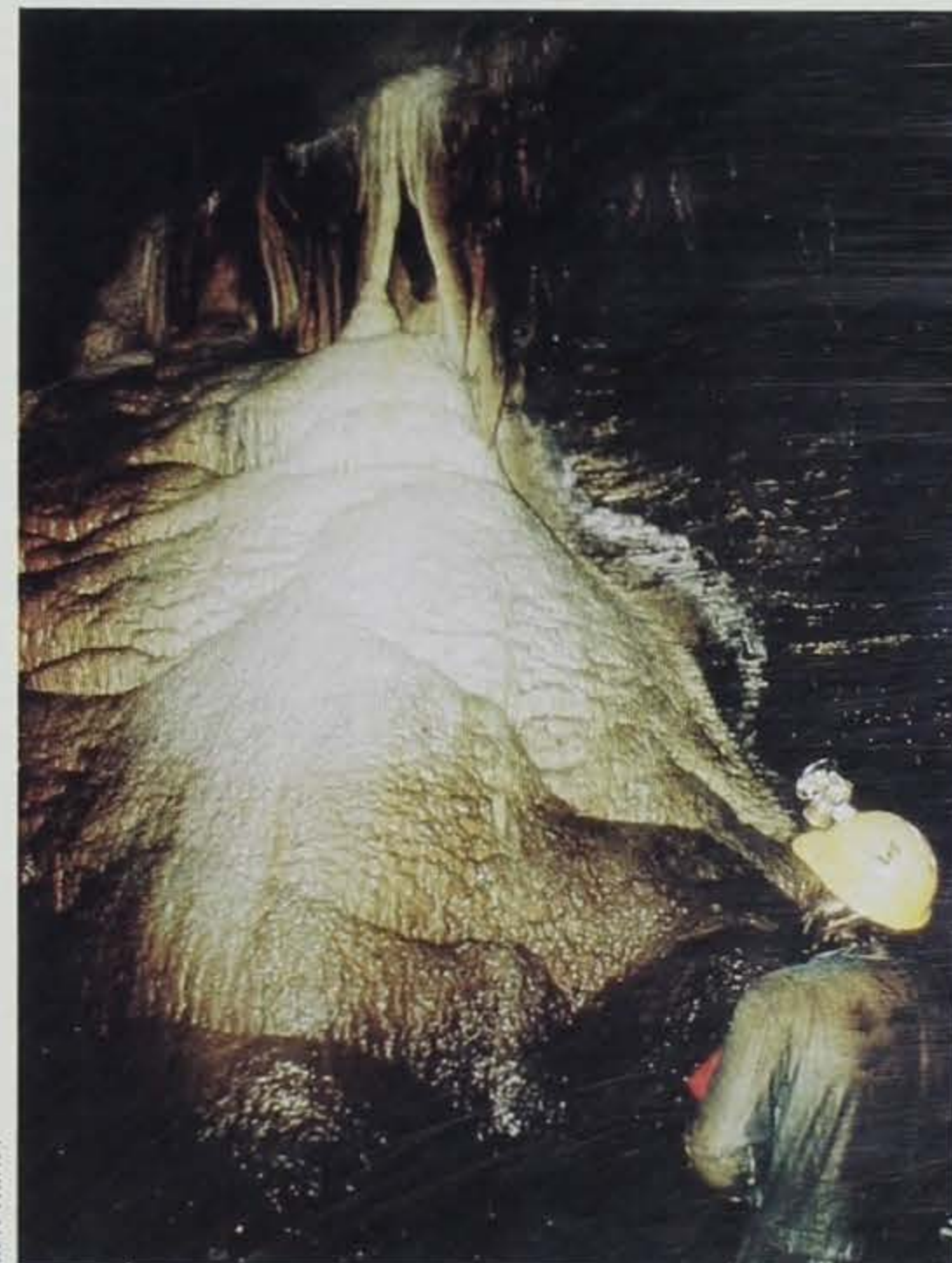
This spring was dedicated as a state preserve in 1970. It encompasses approximately 80 acres. The spring emerges from a small opening at the base of a 150-foot cliff. A variety of recreational activities are allowed on the area.

I was wet, covered with mud, and tired when I finally emerged from Cold Water Cave. I had earned a few bruises, but I had survived! Some day I hope to return to the cave to assist the Grotto people with their work in this mesmerizing subterranean fantasyland.

Potential for further exploration still exists within this cave. Cavers from Illinois, Wisconsin and Minnesota as well as the Iowa Grotto members are continuing to work on what is now known as the "Cold Water Project." Kenneth and Wanda Flatland own the shaft entrance to the cave, but allow people into the cave one weekend a month. Further study continues, and new volunteers are always needed to work on the project. Anyone interested in assisting in this endeavor can contact Mike Bounk, Rural Route #3, Box 194, Tipton, Iowa 52772.

Wendy Zohrer is the eastern Iowa field information specialist for the Department of Natural Resources. She has a B.S. degree from Iowa State University in fisheries and wildlife biology and has been in the conservation field for 11 years.

The "Gallery" features a broad expanse of colorful flowstone resembling a frozen waterfall.



Steve Hurley



Ron Johnson

Concrete pillars of toboggan run are still intact (above).

DOWN HILL

By Dale Brumm

In the mid-1930s, the development of winter sports areas in Iowa's state parks were planned by the Civilian Conservation Corps, the National Park Service and the Iowa Conservation Commission (now the Department of Natural Resources).

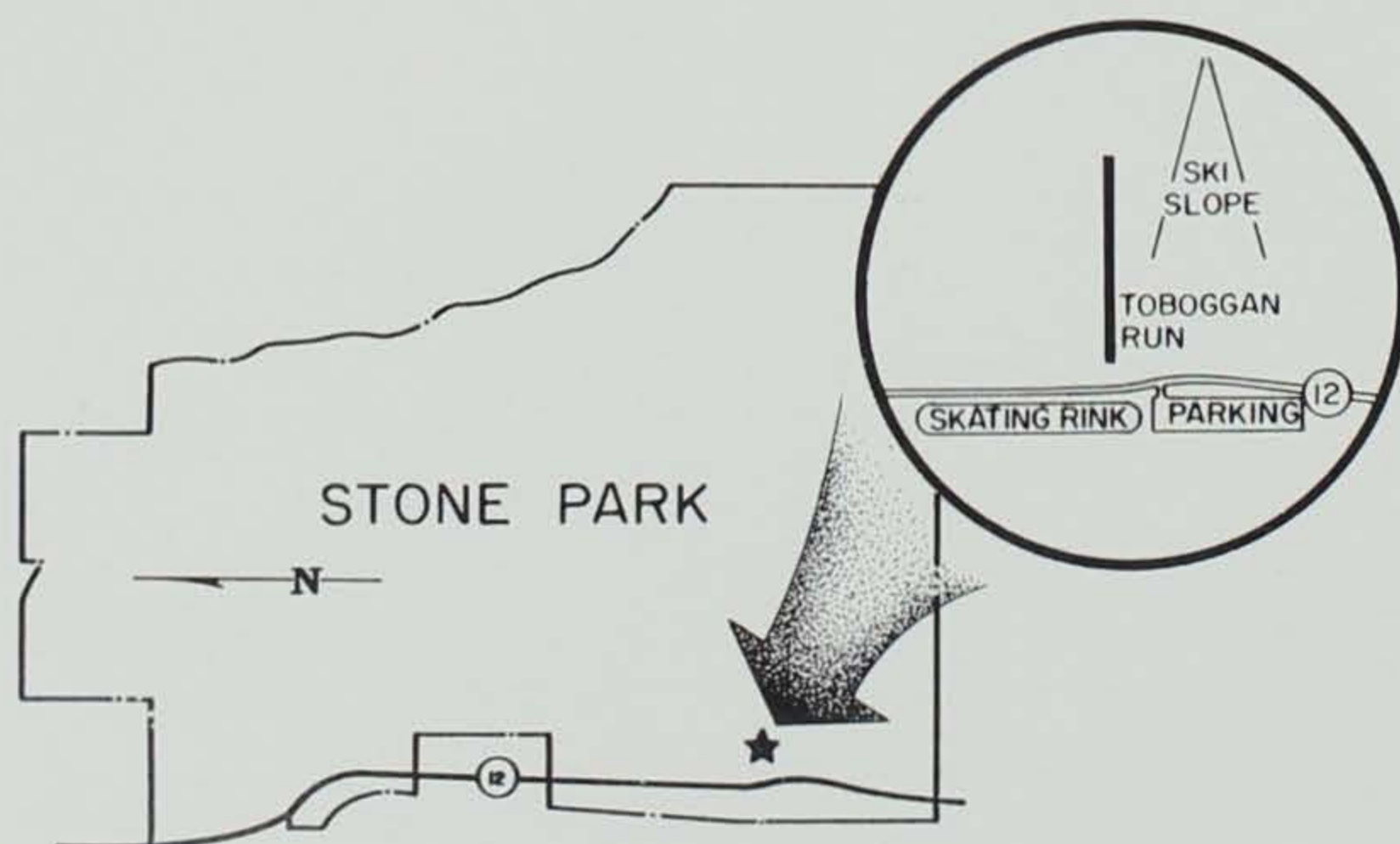
In 1937, such an area was designed and approved to be built in Stone State Park in Sioux City. The plans show a 900-foot toboggan slide, a 600-foot ski slope, an 8,000-foot ski trail (in conjunction with the bridle and hiking trails), and an ice skating rink which included a concession building, bleachers and portable latrines.

A well was drilled and a pump-house was constructed complete with a 3,000-gallon water reservoir. Some waterlines were installed, mainly to the ice skating rink area. I have been told that water was pumped to the rink, but due to the properties of the loess soil it never filled. It does not appear that the buildings or bleachers were ever constructed. (In 1967 when an underground telephone cable was being laid, a waterline not shown on any plans was uncovered and broken. There was some concern shown until the history was explained.)

The toboggan run was completed and operated for one season. The operator told me he carried snow to the run to keep it covered. The facility was approximately three blocks long and had a drop of ninety feet in the first half. The run ended at a pile of baled straw. The participants then pulled their sled back up the hill by hand for another "thrilling" ride to the bottom. Rumor has it that a serious injury hastened the demise of this installation. Today, the concrete pillars that held the runway are still in place, and with some imagination the slide can be visualized. The concrete walls of the pumphouse and the water storage tank are also intact. There is no evidence the ski slope or trails ever developed, but if they were, the following 38 years have obliterated any signs of them.

Newell Guernsey, 91, who was involved with developing Stone State Park recently explained that officials studied snowfall reports and other weather factors and determined the project should not be built; but that after he had left the project, someone decided to go ahead with it.

An interesting item surfaced in the research of this article — the area used was originally platted as Lincoln Street in Sioux City. No street was ever constructed; and although there has been a Lincoln Way, there was no Lincoln Street until recently.



Dale Brumm is the park ranger at Stone State Park. He has spent 23 years in parks, the last 20 have been at Stone.



Iowa's Next Major Environmental Thrust

By Ross Harrison

Protecting Iowa's groundwater has become the state's No. 1 environmental issue, just within the last year. Before this issue is laid to rest — if it ever can be — it will have cost a lot of money, changed a number of common farming and industrial practices, and hopefully, restored public confidence that its water resources are safe.

As with any issue of this magnitude, it will be highly controversial.

Facts supporting these assertions are contained in the report by the Iowa Department of Natural Resources (DNR), *Iowa Groundwater Protection Strategy* — 1987. The report was prepared for the DNR's

Groundwater Contamination

Illustrations by Dawn Saxs

Environmental Protection Commission which, just last month, presented it to the legislature and Governor Branstad for further action. Recognizing that groundwater pollution also may be the nation's most important environmental problem, the U.S. Environmental Protection Agency (EPA) has encouraged all states to complete similar studies.

A few of the relevant facts from the Iowa study:

- About 80 percent of the state's population depend on groundwater for drinking water.
- More than 20 percent of the individual, rural resident wells, tested by the state show excessive nitrate pollution (from nitrogen fertilizers) and traces of other, more dangerous farm chemicals.
- 50 percent of the state's municipal water supplies are tainted by farm and other chemicals, such as industrial solvents.
- 86 percent of all Iowans now view groundwater contamination as a serious problem; 63 percent view agricultural chemicals as the cause.
- Iowa farmers depend heavily on nitrogen fertilizers and pesticides — blamed the most for polluting groundwater — for crop production.
- Nitrates in well water (from nitrogen fertilizers and other sources) can kill unborn and young humans and livestock; some of the pesticides and other chemicals found in well water are known to cause cancer in laboratory animals.
- If the national average holds in Iowa, perhaps 14,000 of an estimated 40,000 underground storage tanks are leaking hazardous materials into the earth and groundwater around them.
- More than two-thirds of the 327 known abandoned or uncontrolled hazardous waste sites are either known to contaminate groundwater (13 percent), are potential contaminators (40 percent) or there is not enough information available to tell whether they are contaminating (14 percent).
- Although there are good reasons to be concerned about what we KNOW of groundwater contamination, experts contend there are many more UNKNOWNs which increase their concern even more.
- Once contaminated, groundwater drinking supplies are very difficult — if not impossible — and very expensive to clean up.

Compared to some of the past environmental problems, such as DDT, surface water and air pollution, groundwater contamination has become a popular concern almost overnight. Even less than five years ago, few scientists or government agencies were interested in it. For example, there had been a widely held view that such pesticides and nitrates would either break down to harmless compounds, or that the layers of earth would filter them out before they could reach the aquifers. Information from a northeast Iowa monitoring project has done as much as anything else in the entire nation to change that kind of thinking.

The 103-square mile Big Spring Basin, northwest of Elkader is an unusually good natural laboratory for studying groundwater. The groundwater

Diagram on pages 16 and 17 courtesy of the Wisconsin DNR

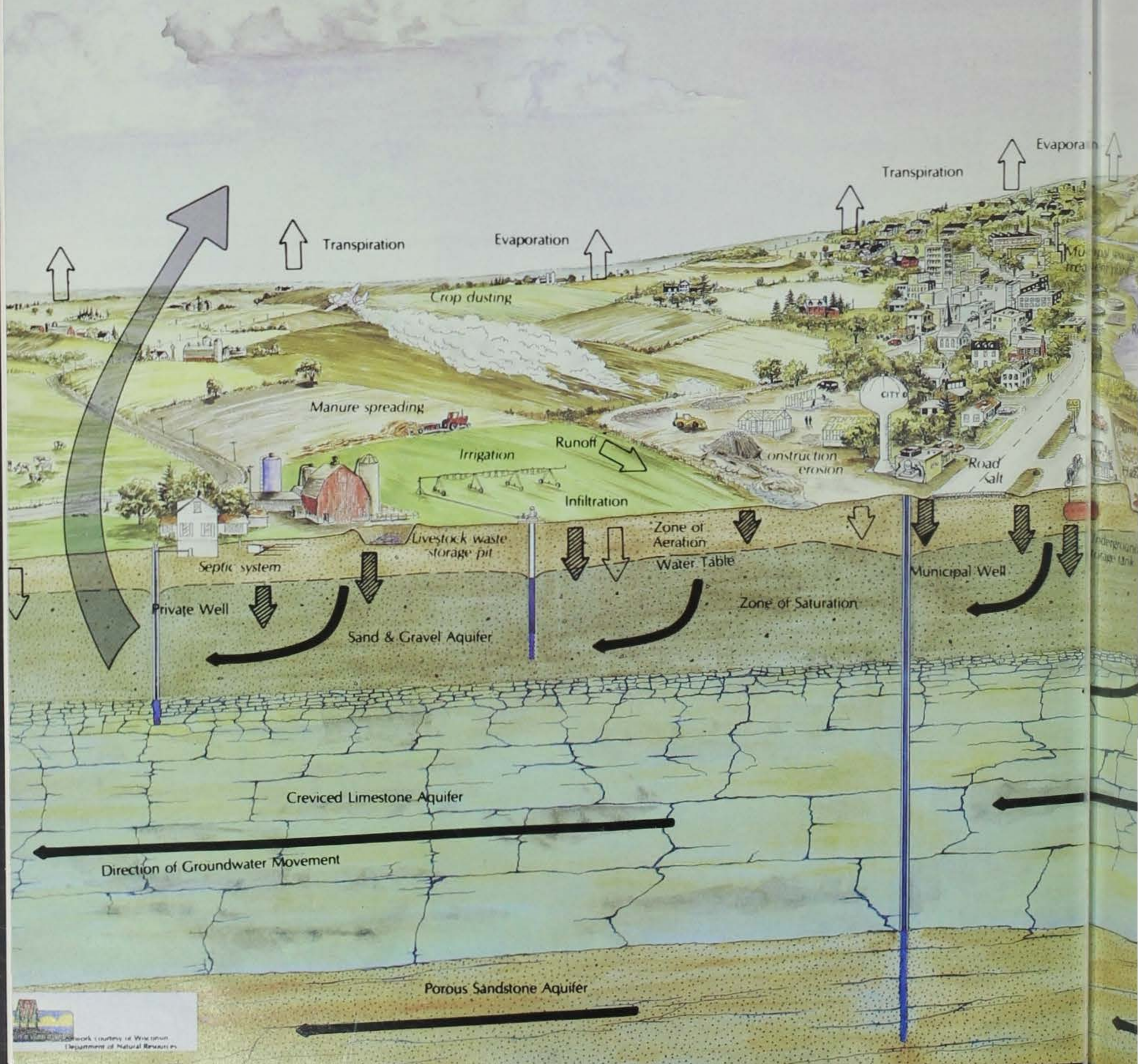


Groundwater and The Water

← Direction of Groundwater Movement

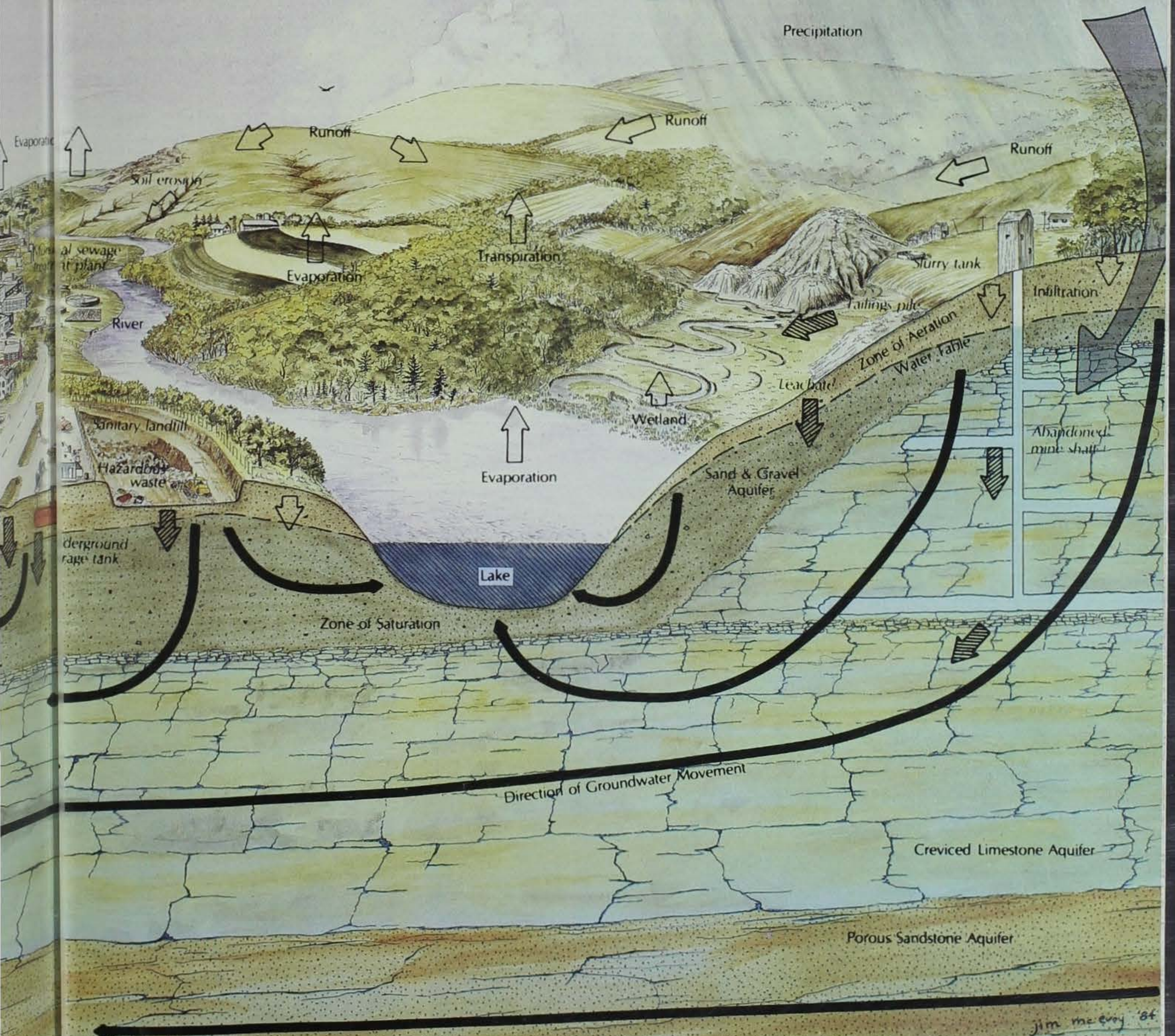
↓ Human induced impacts on groundwater

↓ Natural processes



Network courtesy of Wisconsin
Department of Natural Resources

Water and Land Use in Water Cycle



of the basin is isolated from all influences except that which is introduced from above — natural precipitation and whatever else may come from the activities of the 200 resident farm families. The geology is such that the groundwater all flows to an exposure — Big Spring — where it can be easily monitored.

Charles Benbrook, the executive director of the Board of Agriculture at the National Academy of Sciences, Washington, D.C., claims that the on-going study at Big Spring is the nation's most advanced: "No other state or group of researchers comes close."

The study is showing that farm chemicals are appearing in Big Spring in increasingly larger concentrations, roughly paralleling the increasing applications of those chemicals by farmers over the years. Nitrogen fertilizer use in the Big Spring Basin and the appearance of nitrate in the groundwater have both increased almost three times in the last 20 years. More recently, several of the common pesticides have begun increasing in concentration in the spring water.

But what makes the Big Spring study even more significant is that researchers believe that it represents the rule, rather than the exception, of the behavior of farm chemicals and groundwater in many more areas around the state and the nation.

Farm chemicals are certainly not the only contaminants of groundwater. Improper underground storage of hazardous materials may have a much worse impact, although the effect may be much more local. A study completed by the U.S. EPA, for example, suggests that as many as 35 percent of the underground storage tanks which store petroleum and other toxic materials are leaking. This concern has already prompted many states, including Iowa, to implement new regulations for monitoring existing underground tanks and to assure safer new tanks. There are an estimated 40,000 underground storage tanks in Iowa. Only about 28,000 have met the new requirement to be registered with the DNR.

Abandoned hazardous waste disposal sites are known to have contaminated 14 public water supplies and many more individual drinking

water wells across the state. Industrial concerns are the cause of the most significant cases, and where these waste sites are located in or near major urban areas, such as the Dico site in Des Moines, the potential for human health risk is the greatest.

Considering all of the major threats to Iowa's groundwater, the DNR's protection strategy has listed the priorities which need to be addressed. They run the gamut from farm chemicals to urban lawn care, ranked according to their potential damage the groundwater resource.

Just exactly what the consumption of contaminated groundwater means to the human population is the subject of much study, some speculation and controversy. DNR environmental experts believe the majority of scientific evidence suggests that these chemicals are dangerous to us. But they join with the producers of those products and many others in wanting more study of the effects, before they say just how dangerous the chemicals are. In the meantime, because the DNR has much of the responsibility for the condition of the state's environment, the protection strategy makes a long list of recommendations, which, if funded and implemented could lead to a much more positive future for the ground-

Ag Chemicals



water resource. Implementing all of the recommendations would require 10 years and \$230 million and would represent one of the most major environmental undertakings in the state's history. The proposals strike a common sense balance between the needs of society today and the need to preserve and protect groundwater for the future. Although the recommendations account for more than 30 pages in the *Iowa Groundwater Protection Strategy*, they are briefly summarized here.

Recommendations

Nondegradation Goal — The overriding ambition for all of the recommendations is to stop the pollution of Iowa's groundwater, and to reverse the negative effects where they now occur. While even the most concerned experts and citizens may desire the quality of groundwater to be as pure as nature can allow, practicality may prevent 100 percent purity. But, it is much too early in the process of trying to protect our groundwater to identify safe or low-impacting compromises. Nondegradation may be a lofty goal, but it is the only one that is prudent to begin the attack on saving the resource.

Prevention — If nondegradation is the goal, then "prevention" is the means on which nearly all of the recommendations focus. Prevention is cheaper than cleanup, which may

Landfills, Dumps



not be possible or may take many years to complete and it is safer than medical treatment of the sick. It emphasizes the responsibility of the polluter, not the user.

Public Education — As part of almost all of the recommendations, a knowledgeable public is viewed as one of the most critical elements needed for groundwater protection. Not only do all of us need to learn how we can prevent groundwater contamination, but we need to support the appropriate public policies and programs that will help solve groundwater problems.

Research and Monitoring — Because groundwater contamination has risen so rapidly as a major new threat to our society, there are many more questions than there are answers regarding the subject. Resource mapping, measuring contaminants and determining their sources, discovering alternatives to practices which contaminate groundwater all will take a considerable amount of research to resolve.

Governmental Cooperation — Federal, state and local governments, spanning dozens of agencies which

Drainage Wells



have some stake in groundwater, must cooperate on the complex issue of groundwater protection. As elected leaders establish what is to be done through the funding and directions they set, the rest of government will have to operate in a coordinated fashion to accomplish the goals. Little can be done without additional government funding.

Agricultural Chemicals — A 10-year, nonregulatory program would be directed at protecting groundwater from fertilizers and pesticides. A major objective would be to improve the management of such chemicals to avoid their loss and introduction into the groundwater. It is expected that research followed by farmer education could result in many new efficiencies in chemical use.

Abandoned/Uncontrolled Dumps — With more than two-thirds of the more than 300 abandoned or uncontrolled hazardous waste dumps either polluting or potentially polluting groundwater, the DNR should accelerate an on-site assessment program, completing all known sites within the next five years. Where contamination problems are discovered, solutions should be as eminent as the potential is dangerous. Some of these areas have been likened to land mines, just waiting to be discovered.

Hazardous Waste Handling — Iowa needs a facility to store and/or process hazardous waste and a plan for collection and transportation of those wastes. Whether the facility is privately owned and operated, a government venture, or a cooperative effort, the current lack of a facility

Sinkholes



and a plan represent a threat to the groundwater due to the potential for widespread mishandling of these wastes.

Health Information — A program to establish a central data bank on issues of health which are related to groundwater would be established, and major research into the field would provide the kind of facts needed to guide future public policies on groundwater protection.

Abandoned Wells and Ag Drainage Wells — All abandoned water wells, and those wells which drain wet agricultural areas would be plugged and not allowed to contribute surface runoff into the groundwater.

Sinkholes — New and innovative farming practices would be developed and instituted in watersheds which drain to sinkholes, thereby eliminating surface runoff into the groundwater, or diverting such runoff. Highly polluting basins would be targeted for the earliest preventative techniques. Sinkholes, used as personal or "area" dumps would be cleaned up.

According to Bernie Hoyer, the DNR's project leader on the development of the groundwater protection strategy, Iowa is no better or worse off than other nearby states where farming is intensive, or where other activities have ignored the consequences on groundwater.

"We are lucky, when you think about it," says Hoyer. "Iowa has some of the nation's best information describing groundwater problems and we have just completed a 10-year plan which offers a direction on how we can resolve them. We have had a great show of support from the vast majority of farmers and others who have become aware of the problems."

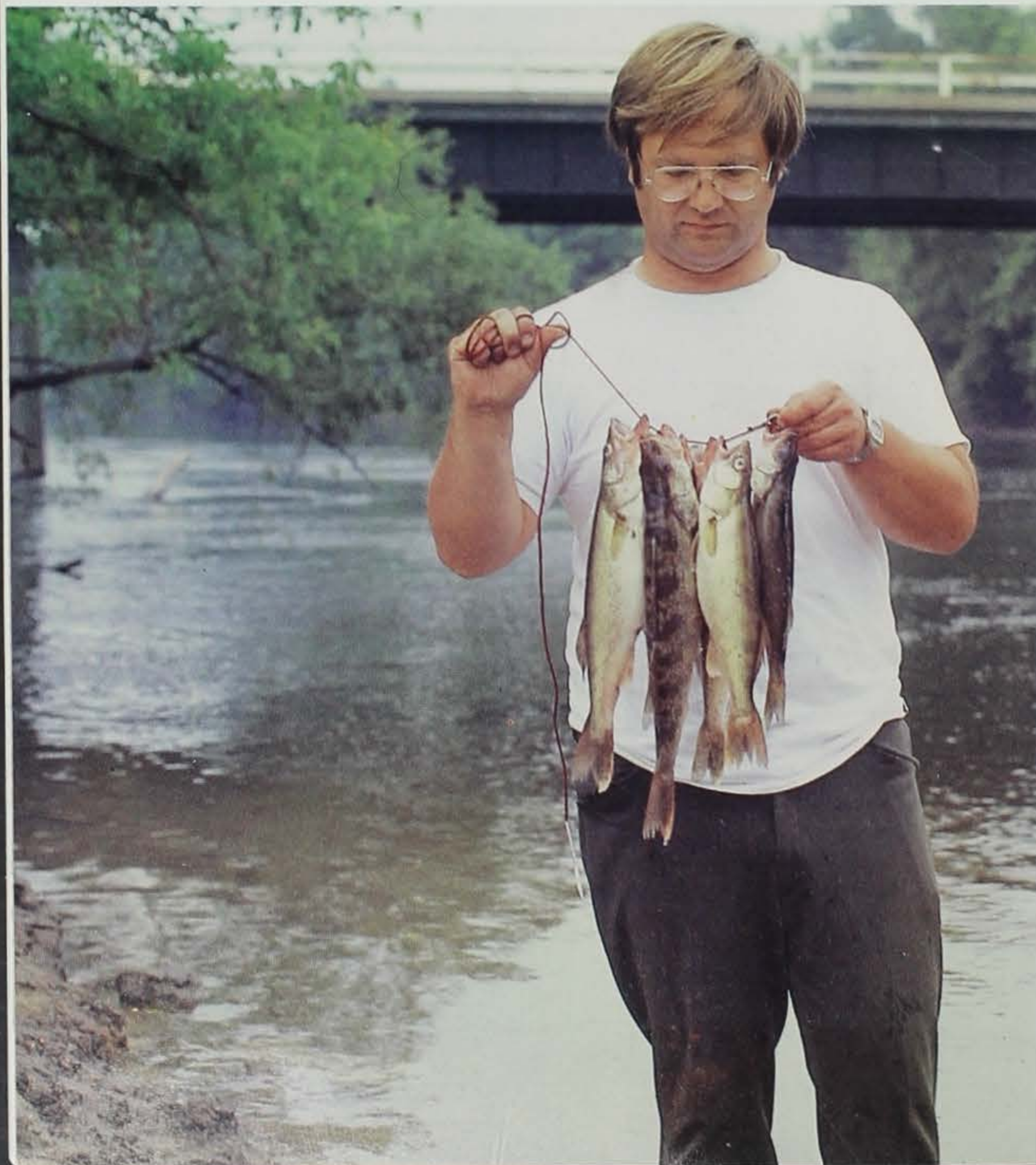
"While I don't believe we are in a crisis now, we could be facing one soon. The situation warrants serious attention, and I am optimistic that we can handle the problems if we get started right away."

Ross Harrison is chief of the information and education section. He holds a B.S. degree in fish and wildlife biology and journalism from Iowa State University. He has been with the Iowa DNR since 1980.

STREAM WALLEYE FISHING

Can It Be Improved?

By Vaughn L. Paragamian



A large bat flew out of the woodlands as the evening darkness crept upon us. We were in our laboratory and ready to continue our experiment. The laboratory and its surroundings were dead silent; our work would continue through the darkness.

First the electrodes were dropped over the bow of the boat, and the electric generator started. This specialized fishing method used to sample fish is called electrofishing. A few walleye were taken from the river and transported to the laboratory at Manchester. Few of the villagers understood what we were trying to do, but there was a plan that had an objective.

Research conducted elsewhere had proven that tissue samples of fish could be used to distinguish district populations or strains of walleye. The goal of our work was to determine if we could find a strain of walleye better suited for survival in our interior streams. All past stockings of walleye were composed of the Spirit Lake strain.

Sound like a scene from Frankenstein? Not at all, but it is an example of fisheries research in Iowa. The Fisheries Bureau of the Iowa Department of Natural Resources has undertaken this project to improve stream fishing for walleye. The investigation developed because of decades of stocking the Spirit Lake strain of walleye early in the spring failed to produce acceptable walleye population in interior rivers. The study is being conducted on the Shell Rock, Cedar and Wapsipinicon Rivers, but the information obtained on these rivers will help improve walleye fishing on many other Iowa streams.

With the above information in mind, let's take a look at walleye in Iowa. Walleye rank among the most popular sport fish in Iowa, and they inhabit all of the major rivers. Many anglers fish for walleye in Iowa's larger streams, but their catch is much lower than expected. Although native to the larger rivers, evidence indicates natural reproduction is very low and the impact of plants from Iowa's fish hatcheries is unknown. It is apparent, however, that despite intensive stockings since the early 1950s, stream walleye exist in low

densities. Also, these factors affecting survival of naturally reproduced and stocked walleye are simply unknown.

This investigation will answer several of these questions and thus help better manage stream walleye. First, size and date of walleye plants may be significant factors affecting their survival in interior streams. Walleye stockings in rivers have been restricted to releases of fry during the spring, the most inhospitable time of year. Iowa rivers are usually high and turbid during spring, and food abundance low. Part of the investigation will deal with releasing fry (tiny one-inch fish) during spring and fingerling fish (three to five-inch fish) in late summer when rivers are in better shape and food is more abundant. This comparison will help determine the best season for walleye plants and optimum size of fish needed.

Special techniques will be used to distinguish naturally produced walleye or fry stocked in the spring from fingerlings stocked in the summer. These lots of fish will be distinguished by a new marking technique. A microscopic wire tag will be injected into the nose of fingerling fish prior to stocking. The wire tag is coded in a manner that allows identification of the year the fish were tagged. The harmless, minute wire tag remains in the fish and can be detected with an electronic instrument during sampling in future years.

Fish sampled during the study will, therefore, be passed through the detector to determine if they are fish surviving from fingerling plants and, if so, the year stocked. This study will also help fisheries biolo-

gists determine if the cause of low densities of walleye in streams is due to the strain of fish stocked. The young walleye stocked in rivers in the past were a lake strain, Spirit Lake. Some investigators feel walleye can be very selective in spawning habitat requirements. The lake walleye may not find river conditions suitable to spawning. Perhaps a strain of walleye that has evolved in river conditions would do better, so walleye from the Osage River in Missouri and Mississippi River will be experimentally stocked. But how will we distinguish river walleye from lake walleye? A type of genetic analysis was devised many years ago to identify variation within a given species of animal such as the walleye. Here is how it works. Scientists found animal populations that are separated geographically often develop unique characteristics. Animals of the same species will have the same enzymes, but those enzymes may have different molecular shapes. When fish tissue is put through an electrical charge and placed in a starch gel, these enzymes can have different banding patterns that are visible when stained. These patterns are similar within the same population (strain), but different populations (strains) will show a different banding pattern. These genetic markers will be used in the new walleye study to differentiate Spirit Lake, Osage River, and Mississippi River walleye.

The study will also identify walleye spawning habitat and seasonal behavior patterns of walleye. This will be accomplished by surgically implanting radio transmitters in adult walleye. The battery-powered trans-

mitters send a signal that identifies individual walleye and enables the investigators to determine the precise location of the fish. Walleye activity patterns during the spawning season will help identify spawning requirements and site selection. Water temperature will also be monitored during spawning by a continuous recording thermometer (thermograph) stationed in the Cedar River study site. Water discharge data recorded by United States Geological survey gauging stations will also be studied in relationship to spawning. A better understanding of fish behavior will aid management of the species and assist anglers to understand their quarry.

A variety of gear will be used to sample walleye. Young fish will be sampled early in the year with seine nets. As the fish grow, electrofishing gear will be used to collect adults and anglers will be interviewed on some of the study rivers as the study progresses.

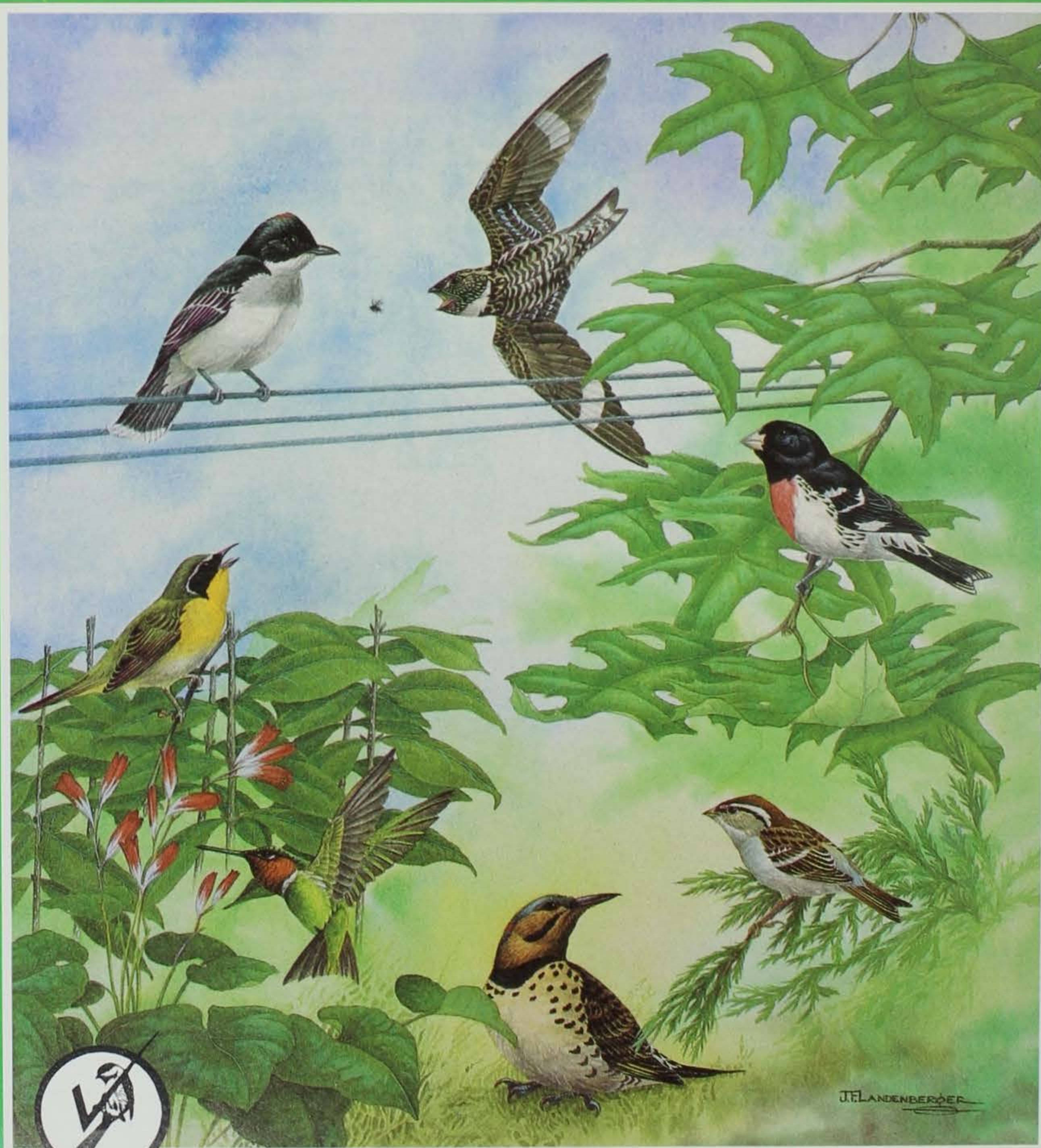
Just as dawn broke, the large bat flew back to its roost in the woodlands. The villagers were stirring about with little knowledge of our evening presence. But if our efforts pay off, they will enjoy better stream fishing for walleye in the years to come.

Vaughn Paragamian is a fisheries research biologist located at Manchester. He holds an M.S. degree from the University of Wisconsin. He has been with the department since 1973.



Biologists search with receiver and antenna for radio-implanted walleyes in Cedar River.

OVERLOOKED BACKYARD BIRDS



CHECK THE CHICKADEE ON YOUR IOWA TAX FORM

Artist, Jim Landenberger, with nearly-completed original art.

FIRST CHICKADEE CHECKOFF POSTER



...more overlooked backyard birds of Iowa.



Gray catbird

The catbird is a plain, dark gray bird which is slightly smaller than a robin. It has a black cap on the top of its head and a pale-colored breast under its tail. Like its name suggests, the catbird makes a meowing sound. It also tries to imitate the sound of other birds and sing at night.

The catbird is seen in brushy areas, including urban shrubbery. It feeds on insects and the buds of various trees and shrubs such as mulberry, hawthorn, cherry and raspberry. The catbird nests in dense shrubs and vine tangles and lays from five to six greenish-brown eggs. Generally, two children are laid, with the first being hatched in mid-May. Catbirds usually leave Iowa by late November. However, they will be seen occasionally during the winter.



House wren

This is the most common wren in Iowa. Although plain in appearance, it has an active personality. The house wren is smaller than a sparrow, with brown upper breast and a yellowish-brown throat. It is seen in small groups, and its movements are very active. The wren's tail is dark and it will frequently wag it up and down.

House wrens live along the edges of wooded areas, in brushy areas and in yards with shrubbery. They construct a variety of intricate nests from grasses and twigs, lined with hair. The male will build several nests, ready to entice a female to lay eggs. The female lays five white eggs with yellowish-brown speckles. During the season, house wrens sing their notes of three phrases. When alone, they sing alone, but when in a group, they sing in a chorus, often imitating the song of other birds.

House wrens arrive in early April and leave by late October.

The Poster Birds



Chickadees are small, round birds with a black cap and a white breast. They are very active and noisy, often singing in groups. They are found in a wide variety of habitats, including urban areas, woodlands, and fields.

Chickadees are very hardy birds and can survive in cold climates. They are known for their ability to store food for the winter and for their ability to enter a state of torpor to conserve energy during the coldest months.

Chickadees are important members of the ecosystem, feeding on insects and seeds. They also play a role in seed dispersal, as they often eat the seeds of various trees and shrubs.

Chickadees are a popular bird among birdwatchers and are often featured in birding guides and field manuals.



Screech owl

More common in backyard environments than most people realize, the distinctive screech owl can be one of 2 colors. The red phase is a reddish-brown color while the gray phase is a mottled gray. Although the birds do change from one color to another, both colors usually occur in Iowa.

Screech owls are small birds (16-20" long) having the ear tufts that are associated with several other varieties of owls. They feed on insects in trees or in leaf litter and often spend the day in such a place even outside of the nesting period. Preferred nesting sites are hollow areas in trees, such as, in hollowed-out tree trunks, but any hole will suffice provided it is not too far from a source of food.

Screech owls are usually quite shy but when the young are ready to leave the nest, the adults will become quite aggressive. It is during this time that adults discover they have a much more difficult job than they thought.

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Northern oriole

A striking orange and black bird, the northern oriole is a colorful bird. The male northern oriole has a bright orange head and back, with a black throat and breast. The female is more subdued, with a yellowish-brown head and back.

Orioles have a loud but very pretty song. They sing often from the treetops, where they build their intricate hanging bag nests. Preferred nesting sites include dense, cultivated areas, such as, in hollowed-out tree trunks, but any hole will suffice provided it is not too far from a source of food.

Orioles are usually quite shy but when the young are ready to leave the nest, the adults will become quite aggressive. It is during this time that adults discover they have a much more difficult job than they thought.



Cedar waxwing

The cedar waxwing is a sleek-looking bird with a crest on the top of its head and a black face mask. The rest of the bird is a vibrant blue-gray color with white underparts. The male and female look the same, but the male has a more pronounced crest.

Cedar waxwings are most frequently observed in fruit trees. Occasionally, the birds will be seen feeding on insects in trees or in leaf litter.

Cedar waxwings are usually quite shy but when the young are ready to leave the nest, the adults will become quite aggressive. It is during this time that adults discover they have a much more difficult job than they thought.



Chimney swift

Sometimes described as a "flying squirrel," the chimney swift is a fascinating bird. It has a long, thin body and a very long tail. It is able to cling to vertical surfaces, such as the sides of chimneys, with its long, thin wings.

Chimney swifts are usually quite shy but when the young are ready to leave the nest, the adults will become quite aggressive. It is during this time that adults discover they have a much more difficult job than they thought.



Barn swallow

In flight, the long "fairy tale" tail of the barn swallow is easily seen and is the most readily recognized identification mark. Like most swallows, the barn swallow is a fast flier and is often seen hovering over its nest.

Barn swallows are usually quite shy but when the young are ready to leave the nest, the adults will become quite aggressive. It is during this time that adults discover they have a much more difficult job than they thought.



Landenberger, the artist

Jim Landenberger is a self-taught artist who has spent many years studying the art of watercolor painting. He is a member of the Iowa Watercolor Society and has exhibited his work in several galleries.

Landenberger's art is characterized by its simplicity and its use of natural colors. He often depicts birds and other animals in their natural habitats, capturing the essence of their behavior and their environment.

Landenberger's art has been featured in several books and magazines, and he has received numerous awards for his work. He is a dedicated and talented artist who has made a significant contribution to the world of watercolor painting.

Overlooked Backyard Birds

Frequently, we think of what's going on in our yards as being a simple matter of lawn care and gardening. But there's a whole world of birds and other animals living in our yards, and many of them are overlooked.

Overlooked backyard birds include the house wren, the gray catbird, the screech owl, the northern oriole, the cedar waxwing, and the chimney swift. These birds are all common in Iowa and can be found in a wide variety of habitats, including urban areas, woodlands, and fields.

Overlooked backyard birds are important members of the ecosystem, feeding on insects and seeds. They also play a role in seed dispersal, as they often eat the seeds of various trees and shrubs.

The Iowa nongame program is pleased to announce its first Chickadee Checkoff poster, "Overlooked Backyard Birds." Noted wildlife artist, James Landenberger, created the beautiful color front and line art back of the poster. The poster also gives the natural history of each bird depicted and explains the nongame program. The original art and layout were donated by Landenberger of Cedar Rapids.

The poster is being used to promote the nongame program and is available for those people contributing to the Chickadee Checkoff. Tax preparers will have the posters available for their clients who donate to the program. Those who prepare their own taxes and donate, or those who make any contributions to the program may obtain a poster by sending \$2.50 for postage and handling to Nongame Poster, Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034. Checks should be made out to the Fish and Wildlife Trust Fund — Nongame Donation.



Conservation Update

\$10,000 Gift from Pheasants Forever



The Clay County chapter of Pheasants Forever presented the Department of Natural Resources \$10,000 toward the DNR's purchase of a 151-acre tract, four miles west of Spencer. Pictured with the symbolic check are, (l-r): John Beamer, DNR land acquisition bureau chief; Al Farris, DNR administrator for fish and wildlife; Larry Wilson, DNR director; Ron Frisbie, president of the Clay County PF chapter; Jim Wooley, field representative for PF; and Dick Lineweaver, lifetime PF member.



In appreciation for outstanding contributions to Iowa's natural and cultural resources, Project GREEN's Johnson County Roadside Committee was recently awarded first place in the state level "Take Pride in America" awards program. The award was made by DNR director, Larry Wilson (left) to committee members (l-r) Emilie Rubright, Bernie Knight, Joyce Wilson and Nancy Seiberling.

Turn in Raccoon Tags

Raccoon hunters and trappers are encouraged to send in ear tags and/or radio collars from raccoons they may have taken this past season. Iowa State University and the Iowa Department of Natural Resources are conducting a joint research study in Guthrie County on raccoon population ecology, where over 750 raccoons have been tagged during the past four years. Tag return information is of vital importance to learn more about raccoon movement, mortality and habits of this important furbearer. A combination of mild weather and high pelt prices made the 1986-87 raccoon season one of the best ever. Besides the tag or tag number, biologists need to know method of take date and approximate location of where the animal was killed. If you have a tag or radio collar, please send this information to the Boone Wildlife Research Station, Ledges Road, Boone, Iowa, 50036, as soon as possible. You will be notified about when and where this animal was originally tagged.



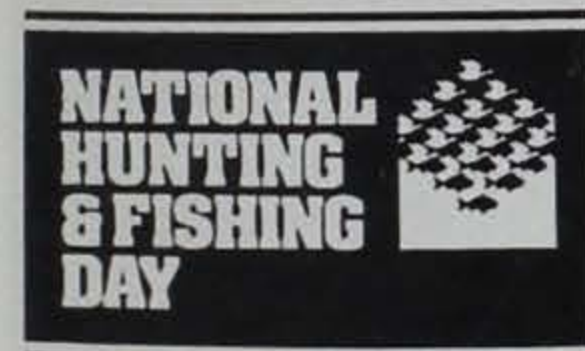
Corrections in Trophy Deer Racks

Several mistakes and omissions were made in the record deer racks story, November, 1986 issue. Corrections will be made in an upcoming issue. If an error was made on your entry, and you have not already contacted us, please write to us at Record Racks, Iowa Dept. of Natural Resources, Wallace Bldg., Des Moines, Iowa 50319-0034. Staff



10TH ANNUAL NATIONAL HUNTING AND FISHING DAY POSTER CONTEST 100 PRIZES TOTALING OVER \$7,500 IN U.S. SAVINGS BONDS OPEN TO STUDENTS IN GRADES 5 - 12

The National Hunting and Fishing Day Headquarters is sponsoring this national poster contest. Schools, environmental, conservation, sportsmen and civic clubs interested in sponsoring this contest at a local level can get more information by writing: NHF Day Headquarters, 1075 Post Rd., Riverside, CT 06878. Contest closes April 1, 1987.



NATIONAL WILDLIFE WEEK

"We Care About
Clean Air"

March 15 - 21,
1987

CALENDAR

March, April, 1987

March 1	Careers in Conservation 2:00 p.m.	Hartman Reserve Nature Center Cedar Falls - Black Hawk County 319/277-2187
March 3	Roadside Prairie 7:00 p.m.	Hartman Reserve Nature Center Cedar Falls - Black Hawk County 319/277-2187
March 5	Attracting Backyard Wildlife 7:00 p.m.	Marshalltown Fisher Comm. Center Marshall County 515/752-3150
March 7	Maple Syruping 2:00 p.m.	Lake Cornelia Park Wright County 515/532-3185
March 7	Landscaping For Wildlife	Lee County 319/463-7673
March 8, 15, 22	Making Syrup 1:00 p.m.	Hartman Reserve Nature Center Cedar Falls - Black Hawk County 319/277-2187
March 8	Bluebird Workshop 1:30 p.m.	Swan Lake Park Carroll County 712/792-4614
March 9	Conservation Film Night 7:00 p.m.	Emmetsburg — ILCC Auditorium Palo Alto County 712/837-4866
March 10	Exploring Iowa's Wilderness 7:00 p.m.	Hartman Reserve Nature Center Cedar Falls - Black Hawk County 319/277-2187
March 11/ April 8	Conservation Family Night 7:30 p.m.	Burt Community Room Kossuth County 515/295-2138
March 11-18	Wetlands Week Celebration	Lee County 319/463-7673
March 13, 14	Environmental Issues Workshop at Springbrook Education Center	Warren County 515/961-6169
March 14	Frosty Canoe Trip - 9:00 a.m. (Reservations Required)	Lee County 319/463-7673
March 15	Full Moon Walk - 7:30 p.m.	Pollmiller Park Lee County 319/463-7673
March 15	Maple Syruping 1:00 p.m.	Liberty Center Warren County 515/961-6169
March 15	Waterfowl Observation 2:00 p.m.	Linger Longer Rest Area Lee County 319/463-7673
March 15	Maple Syruping Demonstration 9:00 a.m. - 4:00 p.m.	Madison County Park 515/462-3536
March 15	Grundy County Museum 8th Anniversary	Morrison Grundy County 319/345-2688
March 15	Building Bird Houses (Call For Reservations) 1:00 p.m.	Manchester - Bailey's Ford Park Delaware County 319/927-3410
March 15 •	Owl Lookout	Swan Lake Park Carroll County 712/792-4614
March 15-21	National Wildlife Week "We Care About Clean Air" Slide Presentations	Polk County 515/999-2557
March 17	Cedar Valley Recreation Plan 7:00 p.m.	Hartman Reserve Nature Center Cedar Falls - Black Hawk County 319/277-2187
March 18	Pheasants In Iowa Slide/Lecture 7:00 p.m.	Emmetsburg — ILCC Auditorium Palo Alto County 712/837-4866
March 19	"Bats in the Attic" Solving Animal Problems 7:00 p.m.	Indianola Public Library Warren County 515/961-6169

March 19	National Wildlife Week Public Program	Fayette — Upper Iowa University Fayette County 319/425-3613
March 21	Maple Syrup Festival 8:00 a.m. to 12:00 noon	Hartman Reserve Nature Center Cedar Falls - Black Hawk County 319/277-2187
March 21	Kite Building Program	Indianola Public Library Warren County 515/961-6169
March 21	Bird House Seminar	Bellevue - Spruce Creek Park Jackson County 319/652-3783
March 21	Maple Syruping Program 2:00 p.m.	McFarland Park Story County 515/232-2516
March 21	Kestrel and Bluebird Nest Box Building - 10:30 a.m.	Kossuth County 515/295-2138
March 22	Maple Syruping Program 2:00 p.m.	Hickory Grove Park Story County 515/232-2516
March 24-29	Iowa Sports and Vacation Show Iowa Taxidermist Show	Veterans Auditorium Des Moines
March 26	"A Bit About Birds" 6:00 p.m.	Hagge Park Sac County 712/662-4530
March 27-28	Go Fly A Kite Construction, 27th - 6:30 p.m. Flying, 28th - 10:00	First National Bank Comm. Room and Lake Cornelia Park Wright County 515/532-3185
March 28/ April 25	Junior Conservation League (one-act play) 1:30 p.m.	Izaak Walton League Building Kossuth County 515/295-2138
March 29	Prairie Burn 2:00 p.m.	McFarland Park Story County 515/232-2516
March 29	"Planting in the Dust" (one-act play) 7:30 p.m.	Algona High Little Theatre Kossuth County 515/295-2138
March 30	"Planting in the Dust" (one-act play) 7:00 p.m.	Emmetsburg — ILCC Auditorium Palo Alto County 712/837-4866
April 11	Nighttime Prairie Burn 5:30 p.m.	Hickory Grove Park Story County 515/232-2516
April 12	Early Spring Walk 2:00 p.m.	McFarland Park Story County 515/232-2516
April 12	Hanging Bog Discovery 2:00 p.m.	Swiss Valley Nature Preserve Dubuque County 319/556-6745
April 22	Building Bird Atlas Public Information Meeting 7:30 p.m.	Kossuth County 515/295-2138
April 24	Evening Woodcock Watch 6:30 p.m.	Swiss Valley Nature Preserve Dubuque County 319/556-6745
April 25	Star Party 7:30 p.m.	McFarland Park Story County
April 26	Wildflower Walk 2:00 p.m.	YMCA Nature Center Story County 515/232-2516
April 26	Discover New Wine Park 2:00 p.m.	New Wine Park New Vienna Dubuque County

March

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April

S	M	T	W	T	F	S
			1	2	3	4
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		



River Otters Return

By Lowell Washburn

The Chickadee Checkoff is currently entering its fifth season. During the time, many Iowans have learned that their state income tax form represents an extremely effective and easy-to-use tool for wildlife conservation.

Continued support of the Checkoff, or Fish and Wildlife Protection fund as it is more properly called, has enabled the DNR's nongame staff to initiate a wide variety of projects and long-range programs. These range from establishing critical wildlife habitats within the urban setting, to conducting bluebird workshops, to protecting endangered habitats such as bald eagle roosting areas. Public participation is crucial to the success of Iowa's nongame endeavors, and without it our backyard bird feeder, amphibian and breeding bird surveys would not be possible.

Perhaps the most spectacular of the nongame efforts has been the attempt to reestablish certain native wildlife species that no longer occur in Iowa. During the past couple of years, initial reintroductions of wild river otters has become an overwhelming favorite of the public.

The river otter is a large, mink-like mammal that may attain a length of

more than four feet. Many folks consider the otter to be the most endearing of all wildlife species, and the animals are best noted for their boisterous behavior and playful antics. Otters often develop communal slides along the banks of rivers and streams where they forage for fish, crayfish and frogs. Historically, the river otter enjoyed widespread distribution across Iowa, but overexploitation and wholesale habitat degradation caused its numbers to plummet around the turn of the century. It is currently listed as an endangered species in this state.

Iowa's first otter release occurred in March of 1985 when 16 animals were released at Red Rock Reservoir near Runnells. These first otters were implanted with radios so that their movements and survival could be monitored. The otters did exceptionally well, and only two mortalities were known during the first year.

This success paved the way for a second, larger release of 60 otters during the spring of 1986. Ten pairs of male and female otter were given their freedom at Otter Creek Marsh near Tama, Springbrook State Park near Guthrie Center, and at the Boone Forks Wildlife Area in Hamil-

ton County.

All 76 otters released during the past two years have originated from wild-trapped stock obtained from the bayous of Louisiana. During March of 1987, the DNR will receive another installment of 60 Louisiana otters. Releases of 20 otters each are planned for Sweet Marsh near Tripoli, Little Sioux River near Linn Grove in Clay County, and Rathbun Reservoir in Appanoose County. This will complete our initial stocking agreement, and it will be time to step back and assess the project before deciding exactly how to proceed.

Because of the otter's somewhat limited reproductive potential (females produce an average of two to four young per year), biologists point out that the animal's recovery will be a long, uphill battle. However, there was reason for some optimism when a young-of-the-year otter was accidentally taken by a beaver trapper on the Des Moines River near Ottumwa during November of 1986. This may be evidence that some limited reproduction is already occurring along our interior streams.

Beyond the revenues being generated from the Chickadee Checkoff, Iowa river otters are receiving addi-

IOWA RIVER OTTER SHIRT ORDER

THEY OTTER BE



NAME: _____
ADDRESS: _____
CITY: _____ STATE: _____ ZIP: _____

T-SHIRTS: \$6.50 plus \$1.00 postage per shirt
SWEATSHIRTS: \$14.00 plus \$1.00 postage per sweatshirt

Make Checks Payable to:

IOWA TRAPPERS ASSOCIATION • PROJECT OTTER

Order From: **ITA PROJECT OTTER**

c/o Bernie Barringer
Iowa Trappers Association
R.R. 2, Box 153
Forest City, IA 50436

ALL PROFITS GO TO IOWA'S RIVER OTTER
RESTORATION PROGRAM

QUANTITY:

LT. BLUE T-SHIRT
GOLD T-SHIRT
SWEATSHIRT
(GREY)

CHILDREN

ADULTS

6-8	10-12	14-16	S	M	L	XL

tional help from a rather unusual private funding source. The Iowa Trappers Association, Iowa State University Fish and Wildlife Biology Club, and the Fur-Takers of Iowa are currently generating funds through the sale of "They Otter Be In Iowa" T-shirts and sweatshirts. As a result of the shirt sales, the group recently presented DNR Director Larry Wilson with a check for \$1,000 to be used for the otter project.

The 1987 Iowa Nongame Support Certificate is now available for purchase from the Iowa Department of Natural Resources, Wallace Building, Des Moines, Iowa 50319-0034. The cost of each is \$5.

The certificate, featured below, is a river otter photographed by Jim Messina of Cedar Rapids. Each of the 5,000 prints are individually numbered. Revenue from the sale of these collector's items will be used specifically to enhance Iowa's nongame species.



Ross Harrison



Jim Messina

A total of 60 otters were released at 3 locations last spring. Twenty of the 60 were released, amongst a number of well-wishers, at Otter Creek Marsh near Tama.



Ron Johnson

Warden's Diary

By Jerry Hoilien

I would like to take this opportunity to give a pat on the back to all the good hunters and fishermen who enjoy our natural resources. You pay the bill, you know. As a matter of fact, you are about the only ones who are paying. Over the years, I have noticed that the violator, the one who breaks all the hunting and fishing rules, just does not care about fish, wildlife or his fellow lowans. Most violators seldom bother to buy a license. Oh, some will just to avoid the warden — sort of like an insurance policy. Like the poacher who buys an archery license to cover his "rifled" or "out-of-season" deer. His "contribution" costs us not only in fish and wildlife resources, but in adverse public opinion.

Good hunters and fishermen deserve a lot of credit, but rarely get much. The fact that thousands of you hunt and fish across our state without so much as raising an eyebrow of anyone, is why game wardens don't spend much effort on you. We are too busy chasing the violator. You deserve more than that recognition. All through the increases in fees and more restrictive regulations you have stayed with your sport and supported it mentally, physically and financially.

Not only does your license dollar support law enforcement, but the research, management, land acquisition, hatcheries, boat ramps and other programs and facilities. Your vocal and moral support is necessary and is appreciated. You would be surprised how many stories I hear. Like the noisy guy at the bar, mean-mouthing the local warden because he got caught, who got cut off by the bartender/owner, "Yeh, he is out there doing his job, all right, and I for one am glad he is! Ever since he moved here, I have seen more wildlife and I don't hear so many complaints about poaching. Why don't you wise up and realize people don't like your kind of actions? Shape up and get with it — it's a lot more fun

when you don't have to look over your shoulder all the time. It's called maturing, so grow up!"

Now, there are not too many who will take that strong a stand, but I will tell you it certainly did my heart good, especially when I heard he got a round of applause from the rest of his customers. Then, sometimes, it is done more subtly, with just a frown or a shake of the head in disgust. It takes a lot out of the braggart telling of his over limit or of outwitting the game warden when he realizes he is not impressing anyone.

The good hunter and fisherman should make his feelings known. Not only to the violators, but to his companions, the clubs, his community and our legislators. I have never been much of a politician, but that is an important aspect of the whole thing. Too many times one or two noisy individuals can place restrictive burdens upon thousands of law-abiding sportsmen that have little or no affect on the poacher.

I remember a pretty important and knowledgeable man once said to me, "One of the most important areas of the conservation of our natural resources is the good enforcement of good laws." And that is made possible through the strong support of the many fine Iowa sportsmen.

My hat's off to you. Keep up the good work and we will do the same.

MARINATED VENISON

I swiped this recipe from the Downings — Bille and Berl — retired but not worn out game warden (check with Bille) from Decorah:

1 clove of garlic (or 1/4 teaspoon garlic salt)
1 tablespoon brown sugar
1/2 teaspoon ginger
1/2 teaspoon course pepper (or less)
1 tablespoon cooking oil
2 tablespoon water
1/4 cup soy sauce
1/2 teaspoon Accent meat tenderizer

Cut meat into two-inch chunks or strips. Put meat tenderizer (if you killed an old buck) on for 10 to 15 minutes, stabbing with fork. Place in marinade (in a glass dish) for four hours, turning occasionally. Grill over charcoal, brushing with remaining marinade. Stand guard for snitchers, they're bad on this one — right, Berl?

Nature Tale

The Passing of Two Friends

By Dean Roosa

I lost two friends this past year — one was a really old timer, the other was just a youngster. I miss them both. Let me tell you about them.

One, as I said, was old. And even though I was an acquaintance for only a few years, this old friend taught me much. This old timer taught me to love the early pasque flower, to respect the compass plant, to yearn for the call of the cerlew. My ancient friend was nearly 8,000 years old, sublimely existing in this wonderful state for centuries before it was "Iowa." It was a small patch of native prairie. It "passed on" one day when I wasn't there. The plow rudely turned the vegetation mantle, and in an hour 8,000 years of history were no more.

My other friend was a youngster, just a kid really, when compared to my old friend. About two hundred years old, patiently and quietly residing in this young state for a century before we knew it as "Iowa." Quietly growing, gaining intelligence, becoming a teacher, historian, model citizen. It was a wonderful oak woodland. It, too, passed away one day in early winter when I was away. In a day, 200 years of acquired intelligence and history was lost in the noise of chain saws and bulldozers.

Both friends had taught me much — each in a very different way. One appealed to my savage side, one appealed to my melancholy side. I miss them both.

Classroom Corner

By Robert P. Rye

Normally energy is thought about when there isn't any or when it could be dangerous, as in a house fire. Energy and its balance is important year round, not only to humans but other plants and animals. Some examples of energy imbalance are sun stroke, heat exhaustion, wind storms, and flooding.

Match and review the following energy terms.

Energy Definitions	Energy Terms
a. Spills over dams and turns big engines.	1. Coal
b. The sun's energy.	2. Wind
c. Used in fireplaces and for heating homes.	3. Water
d. Black liquid used for heating and making plastic.	4. Solar
e. Used for heating many homes — can't be seen.	5. Wood
f. Splitting of atoms to give us power.	6. Oil
g. Hard, black rock that can burn.	7. Nuclear
h. Turns blades but can't be seen.	8. Food
i. Energy which makes people and animals play and work.	9. Biomas
j. Burning of garbage for heat energy.	10. Natural Gas

This energy match up quiz was taken from the Department of Education's, new Iowa Developed Energy Activity Sampler (IDEAS).

Answers: 1.g 2.h 3.a 4.b 5.e 6.d 7.f 8.i 9.j 10.c

Plant Tale



Dandelion

(*Taraxacum officinale*)

By Dean Roosa

If you are a homeowner who takes pride in a well-kept, uniformly green lawn, the above picture may make you a bit nauseous. If you are someone who likes "potherbs," or who likes to partake of natural foods, the picture may make your mouth water. If you are a botanist, you may marvel at this plant, one of the most successful — a "survivor."

The plant, of course, is the very common dandelion (*Taraxacum officinale*), a member of the daisy family. It is a native of Europe, and soon followed settlers to this country where it found new habitats to exploit and wasted no time in taking over. It may grow to a height of over a foot, with a coarse, bitter taproot which may also reach this length. The young leaves make a good salad — also called "potherb" or "greens." Some folks like to make wine from the flowers.

One reason the plant is so successful is that it can produce seeds without pollination; in fact, the pollen is sterile. This mode of reproduction is called apomixis by botanists. The result is that each flower in each head produces a seed. It has other biological attributes that spell success — cut it off and it soon forms several new short heads, cut off a flower and it continues to produce seeds, kill all those in your lawn and very soon a new batch of seeds arrive on the wind.

In addition to being used as a salad, it has been cultivated for production of a drug from the root. There is a native dandelion that occurs in Iowa natural areas. It is the red-seeded dandelion (*Taraxacum erythrosperma*).

Disgusting as you may find the dandelion, it is a biological marvel, deserving of a little respect, and it is here to stay.

County Conservation

FOX SNAKES GET NO RESPECT

By Edwin Miller

In the process of cleaning out a farm shed last summer, I ran across a curious mass of reptile eggs. The pale, leathery, oblong eggs were stuck together into a single cluster buried in some well-decomposed manure. The nest site was well-chosen; the eggs were kept moist and protected from temperature extremes.

I placed the eggs into an empty aquarium and kept them covered and moist, hoping they would hatch soon. After waiting anxiously for some time, I almost decided the eggs were infertile. However, 52 days after I found them, the viable eggs split lengthwise and nightcrawler-sized snakes emerged within a few hours of each other.

The newly hatched snakes turned out to be fox snakes (*Elaphe vulpina*), common to the north-central mid-west and ranging across the state of Iowa. Living in a variety of habitats, including open grasslands, stream valleys, bramble patches and woodland edges, the boldly blotched fox snake is one reptile with which outdoor people are likely to come into contact.

As reptiles, fox snakes have no limbs, ear openings or eyelids that move. Instead of ears, the snake's entire body, covered with scales, picks up vibrations through the ground.



One of Iowa's beneficial reptiles, the fox snake (left). Egg mass (above) is mostly hatched.

makes this snake a dangerous copperhead — so it gets thumped again. Actually, fox snakes are generally quite inoffensive and harmless.

By feeding primarily on small vertebrates, snakes are an integral part of nature's food web. People who live close to the land understand the value of snakes, and most farmers welcome snakes around their outbuildings and granaries as mouse-catchers. I remember seeing a half dozen snakes one day while shoveling ear corn from an old crib. The usual contingent of rats and mice are scarce when snakes are present.

Fox snakes, and all snakes for that matter, are a unique part of Iowa's wildlife with adaptations not found in any other form of life. Fox snakes are one part of the life force that helps to ensure balance and health in nature. It's time snakes got a little respect.

Edwin Miller is a ranger/naturalist for the Poweshiek County Conservation Board. He holds a B.S. degree in animal ecology from Iowa State University. He has been with Poweshiek County since 1982.

As a member of the rat snake family, the fox snake's eyesight is fairly good, although their eyes are not very well developed for distance.

Fox snakes feed on mice, young rats or small birds constricting them in their strong coils. Each side of the snake's lower jaw moves separately, enabling it to swallow prey larger than its normal mouth size; it would be like our jaws opening wide enough for us to swallow a whole watermelon!

The fox snake's teeth are hooked and small, not grooved or hollow like the large fangs of poisonous snakes. Its long, forked tongue is harmless, serving as a simple feeler and "smeller." The fox snake cannot smell, but brings odorous air particles into its mouth and into contact with the smell-sensitive organs inside its mouth. These organs supplement the sensations the snake receives through its nostrils.

The fox snake often lays its eggs in rotted logs or stumps. The mother gives the young no care after birth.

The young fend for themselves and grow rapidly. Most double their size in one year and are fully grown, averaging three to four feet in length, in two or three years. In growing, snakes shed their skin at least once and often several times a year.

I released the young snakes in the vicinity of the discovered nest and wished them well. They would need it. Some people have the mistaken notion that they're doing nature a favor by killing snakes. I once found a fox snake apparently bludgeoned to death in a campground area. I could only think of the irony of someone coming to the park to experience nature and succeeding in destroying a very special part of that natural world.

Possibly, it was a case of mistaken identity. Like many snakes, the fox snake will vibrate its tail and stand its ground against a potential threat, and too often the fox snake gets thumped for acting like a rattlesnake. Also, the fox snake has a reddish or brown head, and to some people that



Ron Johnson